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DOCTORAL PROGRAM: INFORMATION SEARCH SYSTEMS

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A B S T R A C T

of a doctoral thesis

Digitalization as a Factor for the Development of Museums in Bulgaria

for the awarding of an educational and scientific degree "Doctor" in a professional direction

3.5. Public Communications and Information Sciences

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The doctoral thesis was proposed for discussion for internal defense by the Department of Library Science, Scientific Information and Cultural Policy, Faculty of Philosophy, Sofia University St. Kliment Ohridski on January 3, 2024.

The doctoral thesis is structured in 3 chapters and contains 251 pages with the following: three chapters, an introduction, a conclusion, a reference to the contributing points in the doctoral thesis and a list of the used literature with 164 titles (104 in Bulgarian and 60 in English language), as well as 49 figures. The appendices have a total volume of 79 pages and include: Appendix 1 – Tables with the Museums in Bulgaria; Appendix 2 – Results Based on Approved Research Methodology; Appendix 3 – Questionnaire for Empirical Sociological Research on the Managerial and Technological Aspects of Digitization in Museums in Bulgaria; Appendix 4 - List of Figures in the Text; and Appendix 5 - Dictionary of Terms Used.

The public defense of the doctoral thesis is scheduled to take place on …………… 2024 The materials are available at the Department of Library Science, Scientific Information and Cultural Policy, Faculty of Philosophy, Sofia University St. Kliment Ohridski, 125 Tsarigradsko Shosse Blvd., bl. 1, floor 4

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I.   GENERAL CHARACTERISTICS OF THE DOCTORAL THESIS

The topic of the dissertation *Digitalization as a Factor for the Development of Museums in Bulgaria* has an interdisciplinary nature, since the problem is in the field of museology and information sciences. The research is structured in three chapters: two theoretical chapters (the first about museums in Bulgaria and the second about digitization) and a third chapter in which the results of the empirical study are presented.

Relevance and Importance of the Topic

The topic is relevant because of the accelerated development of information and communication technologies, digitization enters museums at the levels of expositions, organization, preservation and socialization of cultural heritage. The situation surrounding the COVID-19 pandemic is an additional factor that has an impact on the use of technology in institutions of memory and requires an understanding of the possibilities of digitization, work in museums, visits to them, etc. The topic is significant from a scientific point of view, as the creation of virtual museums, in which digitization is an important factor, is being observed. The present doctoral thesis is an attempt to investigate issues related to the implementation of digitization in museums in Bulgaria.

Object of Research

The object of research are museums in Bulgaria that carry out activities related to the creation of modern ways of presenting information in museum expositions, digitization of exhibits, contribution to cultural heritage, attraction and retention of visitors.

Subject of Research

The subject of research is to what extent digitization is a factor for the development of museums in Bulgaria at several levels: legislative, managerial, organizational, communicative, marketing, etc.

Goal

The goal is to analyze digitization in museums in relation to: the presentation of exhibits and collections; the use of digital marketing tools to promote cultural property; the inclusion of museums in educational and research activities; the provision of public access to museums in an innovative way through virtual expositions by using modern technology and modern software and to establish how digitization can be a factor for the successful development of museums in Bulgaria.

Tasks

1. Preparation of a theoretical overview in the two scientific fields: museology and digitization and establishing the legal and normative parameters at national and supranational/European level.

2. Research of the possibilities of digitization for the preservation of museum artifacts and cultural monuments and the creation of modern expositions, virtual tours, activation of the functions of the sites and social networks using digital tools, software and applications.

3. Approval of a methodology and analysis of the results of an empirical study (semi-structured interview) conducted with museum staff in Bulgaria and based on a study of the sites and social networks used by the museums, with a focus on the legal-normative, technological, marketing and communication models, related to digitization. The empirical study is aimed at analyzing the managerial and technological aspects of digitization in museums in Bulgaria based on the answers of the respondents: museum directors, staff, managing expositions in museums, specialists in digitization, experts in the field of museology, etc.

4. Execution of the research in an online environment in order to establish the way of implementation of digitization at the level of museum management and at the level of implementation of communication activities in the field of marketing, etc.

Hypothesis

Digitization is an important factor for the development of museum work in terms of processes at the legal, regulatory, managerial, technological, technical, marketing level, which are related to the preservation, protection and promotion of cultural heritage and the implementation of access to it; effective management of project activities and funding of museums; qualification and training of personnel when combining museum training at a professional level with technical, technological, digital literacy; combining management and digital competences of museum staff, combining skills for long-term vision with operational solutions and developing museums as part of the cultural heritage.

Range of the Research

The research is conducted at the national level on the territory of the Republic of Bulgaria and is related to the study of the possibilities for the implementation of digitization processes in the national, regional and municipal museums in the country. The time frame related to the realization of this doctoral thesis includes a three-year observation period (from February 2020 to November 2023). The specific time frame provides an opportunity to research and analyze the possibilities for the development of digitization in museums, in cases of an extraordinary pandemic situation, and not only. The period surrounding the COVID-19 pandemic is characterized by numerous physical restrictions, including closing museum sites, restricting visits, changes in the ways of functioning of cultural institutions, etc., as a result of which museum staff is increasingly becoming convinced of the usefulness and necessity of carrying out activities related to digitization. The aforementioned contributes to the study and establishment of potential trends for accounting for technological progress in the possibilities of digitization in museums in Bulgaria.

Research methods

In the preparation of this doctoral thesis, general scientific methods of research were used: overview, observation, comparative analysis and analysis of documents, as well as special scientific methods, among which sociological methods occupy a central place. The conclusions and generalizations presented in the third (research) chapter are based on the analysis of the results obtained as a result of an empirical sociological study (ESS) conducted to identify the managerial and technological aspects of digitization in museums in Bulgaria.

II. STRUCTURE AND CONTENT OF THE DOCTORAL THESIS

Structure of the Doctoral Thesis

The structure of the present doctoral thesis is composed of: introduction, three chapters, conclusion, literature used and appendices. The logic of one of the classical structures for the doctoral thesis was followed, and due to its specificity and the two thematic areas, the first two theoretical chapters are separated. The first is dedicated to museum theory, and the second to digitalization. The third chapter includes the analysis of the results of an empirical study conducted on the managerial and technological aspects of digitization in museums in Bulgaria, using qualitative methods – a semi-structured interview with museum managers and experts in the field of museology, ICT, etc.

Content of the dissertation

In the theoretical overview in the **first chapter** on "Museums in Bulgaria: Nature, Functions, Types and Trends", on the one hand, the main concepts related to the object of research in the dissertation (the museums in Bulgaria and the heritage preserved in them) are examined and their boundaries, adopted in the dissertation, are outlined, and on the other hand, the main functions, role and significance of museums as institutions of memory are analyzed and presented. The chapter is divided into three main parts and several subsections, which are dedicated to: Cultural Heritage and Museums; Functions and Public Significance of Museums as Institutions of Memory; Role of Technology, Culture, Tourism and Science in the Development of Museums.

The first part of the first chapter deals with cultural heritage and museums and is divided into 4 subsections. The first of them defines the basic concepts in relation to museums and outlines the boundaries adopted in the thesis. The approach from the particular to the general is preferred, which is why we start by establishing the meanings of the concepts "culture" and "heritage", which within the framework of the dissertation are considered complementary in the concept of "cultural heritage". The types of cultural heritage are presented, in accordance with the established legal framework in the Republic of Bulgaria and the adopted Law on Cultural Heritage, including tangible (movable and immovable) and intangible. Next, the second subsection of the first chapter of the dissertation examines the emergence of museums as institutions of memory. The definitions of the concepts "memory" and "cultural memory" are presented, and the institutions of memory are

considered mostly from the point of view of the established Bulgarian legislative system. Thirdly, the role, significance and functions of museums in Bulgaria are presented and the concept of museum is defined. The organizations involved in the preservation and promotion of cultural heritage are presented, among them: the International Council of Museums (ICOM), the International Council for Cultural Monuments and Landmarks (ICOMOS) and UNESCO. The dissertation examines the legal norms and regulations related to cultural heritage and museums and presents the main activities related to the international organizations mentioned above. Fourthly, the types of museums and museum expositions according to the adopted Law on Cultural Heritage are researched and summarized, and a classification of museums in Bulgaria is derived and presented, as well as the types of museums and museum expositions. The types of museums in Bulgaria at the beginning of 2023 have been studied and analyzed.

In the second part of the first chapter, some of the main functions, as well as the public significance of museums as institutions of memory, are presented. There are again 4 sub-parts which are considered: Traditional; Educational; Socio-cultural and Communicative Functions of Museums. The legislative framework of the functioning of the museum institution is examined, together with museums as an educational environment. In this regard, for museums as institutions of memory, it can be argued that they aim primarily at the preservation and promotion of the national cultural tradition. Over the years, museums gradually acquire an educational role and importance, becoming an environment in which research can be carried out not only for the preservation of cultural heritage, but also for the purpose of realizing different types of training, meetings, discussions and others. The text presents the traditional functions of museums and the main activities carried out in them, regulated in the Law on Cultural Heritage of the Republic of Bulgaria. The importance of museums and their contribution to the preservation of cultural heritage, the development of their traditional, educational, socio-cultural and communicative functions, as well as in relation to cultural tourism, science, modern technological challenges, etc., is theoretically examined and presented.

The third part of the first chapter is divided into three subsections, in which the role of technology, culture, tourism and science in the development of museums is examined. First of all, museums are presented in the context of the digital age. In connection with this, it can be said that in recent decades, Bulgarian and world museums have faced a number of innovations and

challenges. Important conditions for the promotion of the cultural heritage preserved in them refer to the attraction of the museum audience and the expansion of the circle of museum visitors. The development and adaptation of modern information and communication technologies to the traditional functions of museums contributes to the establishment of new good practices for the socialization of the various museum sites. From this point of view, digitization is no less important, which is a significant and necessary process contributing to the development of the functions of museums and the activities carried out by and within them. In the second place, the text presents museums and their role in the development of culture and tourism, as in this regard, museums as institutions of memory and the promotion of the cultural heritage preserved in them, and not least the attraction of visitors. For these reasons, it can be said that cultural tourism has as its main objective the attraction of stakeholders (cultural tourists) with a relevant and explicit interest in cultural heritage. Thirdly, the thesis examines the relationship of museums with museology and other sciences.

Based on the theoretical review of the basic concepts related to museums, as well as the information presented above, it is reasonable to conclude that museums as memory institutions not only preserve and present cultural heritage, but also play an important role in the development of education, cultural tourism and the application of innovations in the field of digitization and modern information and communication technologies.

The theoretical overview in the **second chapter** of the dissertation on "Digitization: Nature, Technologies and Digital Access to Museums and Cultural Heritage" presents the nature of digitization, the stages, technologies and other important factors related to the realization of the process and the possibilities for providing digital access to museums and cultural heritage. The chapter is divided into three main parts and several subsections. In the first part of the text of the second chapter of the dissertation, the essence of digitalization is presented, as well as the legal and normative parameters of digitalization at the European and national level. Regarding the essence of the concept of digitalization, the term is presented in a theoretical plan, with the aim of delineating the possible existing boundaries. Due to the various existing definitions, some of which are derived from a normative and legal point of view, and others from the point of view of various sciences, the term digitization is adopted in the present dissertation, and the reasons for this are several. First, it appears in the title of the dissertation and outlines a subject area for research.

Secondly, in the scientific publications in the Bulgarian language, in the curricula, especially those of the University of Sofia and the Department of Library Science, Scientific Information and Cultural Policy, the term "digitization" prevails. Thirdly, it is accepted that it more clearly presents the essence of processes and phenomena, while not disputing the use of the term "digitalization", which is preferred in some normative and legal documents and in technical documentation.

In part 2.1.2. the dissertation, concerning "European and national legal framework related to digitalization", examines the legal and normative parameters of digitalization at the European and national level. In this regard, it can be said that, in general, digitization both at the European and national level is regulated by numerous legal and regulatory frameworks and acts, which at national level refer to the legislative system of individual countries, following the adopted common European legislation. In relation to the legal framework for digitization in the context of culture, according to Bulgarian legislation, it can be said that two main laws are relevant: the Law on Cultural Heritage and the Law on Copyright and Related Rights, which determine the importance and necessity of carrying out digitization.

The second part of the second chapter is divided into 4 subparts, which examine: The Technological Context of Digitization; Digitization Infrastructure (hardware and software); Stages in the Digitization Process and Digitization Standards. In relation to the technological context of digitization, as means of digitization, this text examines the physically accessible tools associated with the process, including scanning, processing, data entry, as well as the use of specialized types of software and the provision of long-term data storage. The application of digitization technologies implies the practical implementation of the process and the use of hardware and software that can be used to achieve the end result of digitizing cultural property. The text presents the basic requirements related to the availability of specialized and high-quality technical equipment and hardware, and software provision of digitization processes. Next, the text examines the main stages in the digitization process and depending on the goals of digitization and the resources handled. The digitization process in museums has its similarities and differences in terms of digitization stages compared to other cultural, scientific and educational institutions. Although digitization aims at preserving, conserving, presenting and promoting cultural heritage, in museums the nature of this process depends to a large extent on the objects and artefacts at the institutions' disposal. Without claiming to over-detail the stages involved in the process, this dissertation covers the

leading stages involved in digitization. Fourthly, in part 2.2 ("Digitalization: technologies, infrastructure, milestones and standards") in the second chapter of the dissertation some of the digitization standards in the field of cultural heritage (CIDOC-CRM, DUBLIN CORE, SPECTRUM, LIDO and Cataloging Cultural Objects) are presented for which it can be said that their use in relation to the documentation of museum collections is important due to: identification of individual objects in the collections; development of information systems for museums; application of modern ICT; technological implementation of the inventory processes of the museums' physical storages, etc.

The third part of the second chapter of the dissertation ("Digitization and Digital Access to Museums in Bulgaria") discusses the topic in the context of digitization in the 21st century. Also in this part of the text examines some of the current trends and plans for future work related to the development of digitization in the field of culture, such as the Collaborative Cloud for Cultural Heritage and the National Recovery and Resilience Plan of the Republic of Bulgaria. It summarizes some of the identified problems and challenges in the field of digitalization in museums in Bulgaria, related to the regulatory framework, managerial, resource - financial, organizational, technological, human resources factors, etc. Good examples of practices related to the possibilities for digital access to museums and cultural heritage and implemented initiatives for digital preservation and presentation of museum collections in Bulgaria are highlighted.

For digital accessibility from a museum perspective, it is important to consider the possibilities in a virtual environment (e.g. the accessibility of websites of various museums and other memory institutions to provide access at all levels and for all users, including for people with disabilities). In this regard, problematic factors are: the lack of methodological guide(s) for DA (digital accessibility) of the museum specialist; deep knowledge of the essence of the problem; digital access for the users of a large part of the museums in Bulgaria (many of the museums do not have their own websites, do not use social networks, etc., therefore digital access is out of the question, including for people with special needs, such as the blind, for whom barriers related to access to content have been erected; there are problems, including at the level of physical accessibility in museums and the use of digitization elements in them, etc.

Based on the theoretical overview presented in the second chapter of this dissertation, there are reasons to conclude that in the European scientific and cultural space there is a consensus

regarding the essence and requirements for the implementation of digitization as a process carried out in museum institutions, which is in accordance with modern technological innovations. The review of existing technologies, standards and legal framework shows that there is a need for in-depth knowledge of digitization when implementing it in a museum environment. In connection with this, the two main thematic areas are outlined, in which there is a need for additional development and analysis regarding the application of digitization in museums in Bulgaria. The first area relates to the development of museology and the impact of rapidly changing technologies, standards and demands of cultural heritage users, as well as the paradigm shift in relation to the new museology. This calls for further research relating to the conflict between the modern *smart museum,* which is considered that "in essence, the smart museum of the present (Smart Museum) is not only a technology tied to the development of the global network, but it offers cultural content in context, freely accessible, with functionalities for multi-criteria search, creation of an individual profile and the possibility of creating your own collection"[1] and the old paradigm, which lacks the application of modern ICT and emphasizes the visitor's experience in using the imagination as well as direct encounters with the traditional museum. As a result of the irreversible and dynamic entry of ICT and digitization, taking into account technological progress and rapidly changing technologies in the XXI century, a balance should be found in museums. The use of these technologies not only provides opportunities for innovative presentation and co-experiencing of cultural heritage in museums for visitors, but also contributes to the long-term and sustainable future preservation of cultural property and the provision of digital access to them.

The theoretical sources, scientific literature and research analyzed and summarized thematically in the first and second chapters of the dissertation are used for the formulation and derivation of the basic criteria, thematic areas and sub-areas, which are later applied in relation to the empirical study of digitalization in museums in Bulgaria, as well as for the analysis of the obtained results. A key point in the preparation of the study refers to the fact that the basis of the study is the use of the terms already established in practice and science in terms of theory and practice, as well as the research of various scholars to date, which are presented in the two theoretical chapters of the dissertation and with the help of which the specific problem areas

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[1] **Sotirova-Valkova,** Kalina. Institutionalized heritage in the 21st century. Methodology for digitization and e-being. B: In: *Cultural-historical heritage: preservation, presentation, digitization*, V. 4, 2018, no. 1, p. 159. Access: http://www.math.bas.bg/vt/kin/files/papers/4_1/11-KIN-4-1-2018.pdf.

relating to the study of digitalization in museums in Bulgaria are defined. During the preparation of the research, the existing need for the study of managerial, human resources, communication and technological aspects related to digitalization in museums in the country is taken into account, which at a later stage are used as a basis in the course of the research. The research is timely and valuable, because it can provide answers to topical questions regarding the current state of digitization in museums in Bulgaria, track the extent and manner in which digitization is being implemented in museums in the country in relation to national and global trends in the field of digitization and museum work, and serve as a basis for comparison in the future.

The **third chapter** of the dissertation presents the results of a methodology approbation (in the analysis of museum websites and an analysis of results obtained following an empirical sociological study (ESS) on the managerial and technological aspects of digitalization in museums in Bulgaria.

The Questionnaire is organized in five main blocks, contains a different number of questions, and aims to explore what are the main aspects of the process and stages of digitization in museums in Bulgaria. It focuses on the study of current issues related to digitization in museums and its management, activities, ideas and ways of use and management, challenges, technical provision, capacity (human resources and knowledge), ways of communication, etc. The following were studied: the existence of a legal basis and administrative regulations; specifics of working in museums; digitization and virtualization; gamification and use of modern technological means and software with regard to digitization. The main goal of the study is to establish the significance, perception and application of digitization in museums in our country.

The first of the questions blocks includes 11 questions (from 1 to 11 inclusive), which aim to explore in detail the opinion of the respondents regarding the perception of digitization as an activity in the museum. More specifically, the purpose of the questions is to explore the attitudes of museum professionals regarding digitization as an ongoing process, rather than on the basis of one-off projects. Also, this group of questions is relevant to the study and analysis of the role of digitization for the development of museums when reporting on specific activities and results. Prospects for the preservation of cultural property in museums and the use of digitization to create virtual exhibitions are examined. Last but not least, the purpose of the questions is to explore the

different aspects of communication between museums and their visitors, through the application of digital innovations.

The second of the blocks of questions includes 7 questions (from 12 to 18 inclusive), which aim to investigate: the type and nature of digitization activities carried out in museums; their management; the financing mechanisms; the level of realization and implementation of projects; the obstacles for museum specialists in the process of carrying out various activities related to digitization; the technological level in the implementation of digitization processes and the opportunities for its development, according to the adopted regulatory framework, etc.

The third block of questions includes 5 questions (from 19 to 23 inclusive), which are aimed at exploring the opinion of the respondents regarding the availability of specialized applications in museums and their use in the digitization process, as well as what are their attitudes towards identifying the main functions of the websites, social networks, etc. they use.

The fourth of the question blocks includes 6 questions (from 24 to 29 inclusive) related to the training and qualification of museum employees. Grouped in this way, the questions aim to explore the extent to which museum staff have the necessary knowledge and experience to actively participate in digitization processes and activities, and to explore the impact and effects of the pandemic emergency created by the COVID-19 virus and to identify opportunities for digitization in museums.

The fifth block of questions includes 6 questions (from 30 to 35 inclusive), the purpose of which is to examine the attitude and opportunities for interactive communication in museums in Bulgaria. The questions are grouped in this way because they create a real opportunity to explore practices in relation to: the implementation of digitalization in museums in Bulgaria at the levels of professional activities, marketing and advertising, the use of equipment, software, etc. for the creation of digital collections and virtual expositions, establishing the level of digitalization in the direction of gamification and interactive communication, determining the level of digital literacy of physical and virtual visitors to museums.

According to the scope and objectives of the present study, the Questionnaire was distributed according to the NSI statistical data on the administrative-territorial division of the Republic of Bulgaria, which as of December 31, 2020, is divided administratively-territorially into 28 regions and 265 municipalities , with museums from all over the country included. The Questionnaire was sent to 103 representatives of various museums in Bulgaria, including directors, deputy directors, experts, specialists, employees, etc. Out of the invitations to participate in the survey, the questionnaire was completed by a total of 52 respondents, representatives of 33 museums in Bulgaria, which constitutes 17.7% of the general population (all museums in Bulgaria - according to NSI data as of 2022 - total 186) and the largest share of the respondents were the representatives of 16 different regional museums from 16 different cities, corresponding to 16 different areas out of a total of 28 regions (57.14 %), which include the following 16 cities: Blagoevgrad, Burgas, Veliko Tarnovo, Vidin, Gabrovo, Kyustendil, Pernik, Pleven, Plovdiv - Regional Ethnographic Museum and Regional History Museum, Silistra, Sliven, Smolyan, Sofia, Stara Zagora, Targovishte and Haskovo. Out of the total number of questionnaires sent, responses were received from 52, which represents 50.5% of all respondents. No response was received from 46 of the respondents, and 5 indicated that they refused to fill in the questionnaire. In connection with the implementation of the set goals and objectives of the present study, it is necessary to clarify that the goal is to study and present the level of management of activities related to digitization in museums in Bulgaria, in relation to the adopted legal and regulatory framework related to the museums.

The accumulated information from the respondents was processed with the help of thematic (content) analysis, through which "the individual content units that the researched person uses when answering questions on the individual thematic units are sought". In the course of the study, the aspiration is to make a comprehensive study (to study all the units of the general population), which in practice turned out to be impossible, because a part of those invited to participate in the study refused to participate in the interview. For this reason, a sample survey was carried out according to the respondents.

Based on the analysis of the answers of the respondents to the five blocks of the questionnaire, the following conclusions were reached: there is accumulated experience in the initial stage among the museum employees, as well as a formed set of digital arrays. Digital

technologies are increasingly seen as a key factor for the development of museums in Bulgaria. It is important to keep in mind that digitization processes should not be seen as an end in themselves, but as an innovative opportunity to create stories, promote narratives and shape identities. As a result of the digitization in the Bulgarian museums, an increased level of competences of the employees in the museums in Bulgaria is noticed, but nevertheless, there is a need to develop and improve their digital competences in the future. The majority of the research participants partially understand the possibilities of using digital arrays and resources. There is a need to increase competencies among museum staff and to generate new interested audiences and financial resources. Some of the museum staff state that digitization processes are taking place in the museums where they work, but in reality, there is no information or access to digitized resources on the majority of museum sites.

There is an identified need to create cultural policies that guide the efforts of museum management professionals at both national regulatory and managerial levels to improve areas of concern such as: the regulatory framework governing digitization processes; funding; staffing issues; facilities; technological support and upgrades (hardware and software).

Regarding the identified problems related to the legal framework in the field of digitization in museums, the results of the study show the following: the **lack of uniform national guidelines, standards, strategies, etc**. is taken into account in the field of digitization of cultural heritage, with the increased role and importance of museums and their informative, educational, promotional, research and communication functions. As a result, **the lack of central (national) funding** for digitization processes in museums is taken into account. This shows that serious actions and investments are needed, especially at the national level in the field of museums, as well as at the regional and local administrative level, on the part of the management of individual museums, which would have a positive impact on solving the problems, respectively, related to the improvement of the material and technical equipment in the museums and staffing.

In connection with the identified staffing problems, it was concluded that there is a significant **lack of professionally trained staff and trained personnel** to carry out and manage the digitization processes in museums. It is indicative in the responses of the respondents that the museum specialists consider the need for additional and specific guidelines and instructions regarding the implementation of digitization processes. This necessitates the need to include them

in specialized training, with the aim of increasing digital skills and competencies in the field of digitalization and/or providing additional digitalization experts to be responsible for the implementation of the process at a professional level.

Regarding the identified problems related to the material base necessary for the implementation of digitization processes, it can be said that based on the analysis of the obtained results, a **serious lack of specialized material and technical means and spaces** (material and technical base) is reported, as well as the need for improvements in **technological provision** (providing specialized hardware and software for digitization). All this shows the existing need for future development in the problem areas and the inclusion of digitization at various levels, including digital tools, software, technology, etc.

The analysis of the received answers of the respondents provides grounds to draw the following conclusions. In individual museums in the country, digitization is carried out within project activities and/or through self-financing, which shows the lack of sustainable financial stability in the field of digitization in museums. However, in the large museums in Bulgaria (regional and national), unlike the rest of the museums in the country, as a result of project financing or self-financing, digitization processes are successfully implemented. Therefore, it can be said that uneven rates of digitization are reported in museums in the country, mostly due to insufficient funding and the lack of professionally trained personnel in this field. An additional factor for accelerating the development of digitization processes is the reduced physical attendance of museums, in the extraordinary pandemic situation caused by the COVID-19 virus, as a result of which museum specialists report a satisfactory level of digital competence in their virtual visitors.

Based on summarizing the analysis of the results obtained from the study, the following was found: the hypothesis laid down in the study is confirmed to a good extent. The managements of the museums actively support the possibilities of inclusion in future initiatives, which contributes to the achievement of a higher standard of cultural enrichment. At the level of national and administrative cultural policies, there is a need to provide a long-term vision for the benefits of digitization at the national level and to prepare national policies and strategies for the implementation of digitization processes in museums in Bulgaria. Despite the established problematic areas and deficits, among the museum community in Bulgaria there is growing interest and support for digitization. The results of the survey are indicative of museum professionals'

conviction that digitization is a priority future development vision that could lead to the socialization and attraction of new physical and online audiences, and the improvement of accessibility and educational functions of museums.

In the course of the research, **the main problems** encountered in the selection, recruitment of contact forms and implementation of contacts with respondents and representatives from museums in Bulgaria include:

● **Out-of-date/missing contact information for museums**: partially and/or completely missing, for the implementation of contacts with the relevant museums available in the public space (wrong/old; missing contact emails);

● **Reluctance/refusal to fill in the questionnaire by part of the respondents**: concerns related to the confidentiality of the information provided; commitment to work due to entering the active tourist season; missing responses to the request to complete the questionnaire on the topic of the dissertation, etc.;

● **Insufficient and poor awareness of some of the respondents on the survey questions**: inconsistent/missing answers to the questions asked; filling in by respondents who have no direct relation and observations to the topic of digitization in museums; misunderstanding some of the questions;

● **Technical difficulties**: problems with receiving the questionnaire from the respondents (e-mail ending up in the spam folder); problems with receiving the completed questionnaires back, due to formatting in other than "docx" and "pdf" formats and using different versions of Microsoft Office packages.

To overcome the difficulties mentioned above, the following actions were taken during the research:

● **Exploring and providing alternative options for making contacts with individual museums**: researching contacts on social networks, websites of municipalities and tourist information centers; physical visits to museums; making contacts in personal and telephone conversations with staff from some of the museums and potential respondents;

● **Motivating and providing support and clarification as needed when completing the questionnaire**;

● **Research and informal request for assistance** from the museums to provide competent respondents on the subject of the survey and to fill out the questionnaire;

● In case of technical difficulties, **repeated contacts** (by e-mail and by phone) and forwarding of the questionnaire and/or completed questionnaire were made.

CONCLUSION

In conclusion: the aim of the research has been achieved to a good extent and the set tasks have been carried out. Some of the existing possibilities related to the implementation of digitization processes in museums have been analyzed, including and in connection with the presentation of exhibits, collections, etc., the use of digital marketing tools for the promotion of cultural property, the inclusion of museums in educational and research activities, the provision of public access, etc., as a result of which was established that digitalization is considered a key factor for the successful development of museums in Bulgaria.

In the theoretical overview (first and second chapter of the dissertation), referring to the scientific fields of museology and digitalization, the legal and normative parameters at the national and supranational (European) level regarding digitalization in the Bulgarian museum context are established. The existing possibilities for the long-term preservation of museum artifacts and cultural monuments, the creation of modern expositions, virtual tours, activation of the functions of the sites and social networks, as a result of the digitization and the application of modern digital tools, software, etc., have been studied. A testing of the methodology was carried out in the study and analysis of museum sites (5), randomly selected. A preliminary version was prepared in tabular form with four main groups of criteria, through which the activities realized by the museums related to digitalization, marketing and communication goals and the possibilities of reaching visitors and taking into account their attitudes and expectations were established. A methodology has been applied to analyze the results of an empirical study (semi-structured interview) with museum staff in Bulgaria, based on which some of the legal, regulatory, technological, marketing and communication models related to digitalization, websites and social networks used by museums, etc. have been identified.

An empirical sociological study was carried out on the management and technological aspects of digitization in museums in Bulgaria and the results obtained from the responses of the respondents were analyzed. Some of the key approaches related to the implementation of digitization in museums at the management level, communication activities in the field of marketing, etc. have been identified.

Based on the conducted research, there are reasons to draw the following conclusions. There is a serious shortage of professionally trained staff to carry out digitization processes in the

field of museums. In most museums in the country, where digitization is carried out, work is mainly carried out on the implementation of projects or through self-financing for the implementation of digitization activities. This shows that there is a need to involve museum employees in specialized training, with the aim of increasing their digital skills and competencies, and/or providing digitization experts to carry out the relevant processes at a professional level. This shows that there is a need to involve museum employees in specialized training, with the aim of increasing their digital skills and competencies, and/or providing digitization experts to carry out the relevant processes at a professional level. Next, the results of the research show that at this stage digitization processes are not part of the main activities carried out by museums, but rather a priority future vision for development, which implies the need to undertake serious actions and investments both nationally, as well as at the local level to improve funding, material and technical equipment and staffing in the field of digitization in museums in Bulgaria. Unrealized potential and opportunities for improvements to museum activities, as well as for better preservation, socialization and promotion of cultural and historical heritage through the integration of digital technologies, are noted. There is no in-depth knowledge of the opportunities related to digitization in the field of museums among the professionals working in them, as a result of which the respondents mostly identify the promotion, preservation and recording of cultural property as the main activities that they consider contribute to digitization. There is a need to improve the opportunities for digital communication both between museum staff in Bulgaria and with visitors. No convincing and unambiguous future vision on the planned projects and activities related to digitalization in museums in the next two years is noticeable. At this stage, it was found, on the one hand, the lack and use of specialized software and applications for digitization, and on the other, the existing and applicable possibilities of social networks and websites for informative, promotional, communicative, advertising purposes, etc., which shows, that the application of modern technologies is in the process of entering museum practice.

From the arguments mentioned above, there are reasons to accept the confirmation of the hypothesis attached to the current dissertation, as well as the outlined opportunities for solutions and potential future changes. As a result of the research, it was established that digitization is considered a key factor for the successful development of museums in Bulgaria and their development in the direction of interactivity, virtual visits, virtual, augmented, mixed reality, etc., which is also the hypothesis in this dissertation. However, uneven rates of digitization are reported

in museums in the country, with the main reasons being insufficient funding and professional training of museum staff with regard to digitization, the lack of a clear vision for work in a new competitive environment, taking into account modern attitudes of visitors, and the need to continuously develop the management and digital competences of museum workers. There is a need to rethink the potential for developing and improving opportunities for the preservation and presentation of cultural heritage.

It is important to keep in mind that digitization processes should not be seen as an end in themselves, but as an innovative opportunity to create stories, promote narratives and shape identities. It is of no less importance that the managements of the museums strive that the institutions do not fall into technological determinism, but that they consider the humanitarian perspective of the application of digitization and modern ICT. All this emphasizes the need for the future development of museums in the country in the direction of digitization, the integration of the process and the wider application of digital tools and technologies, not only for the purpose of preserving and popularizing cultural heritage in museums in Bulgaria, but also for the management of collections, generating new audiences, improving accessibility, educational functions, etc.

In conclusion, it can be said that despite the established problems and deficits, in the museum field in Bulgaria, there is a growing interest and support for the efforts of specialists, both at the local and national level, to promote innovation and the sustainable development of digitization. The managements of the museums actively support the possibilities of inclusion in future initiatives, which contributes to the achievement of a higher standard of cultural enrichment and last but not least, digital technologies are increasingly seen as a key factor for the development of museums in Bulgaria.

The results obtained and the formulated conclusions and summaries based on the conducted research can be used as a basis for future studies, creation of cultural policies and strategies at the local, regional and national level, referring to the possibilities for improving and supporting the technological development of museums and management of digital museum resources, therefore the following future research perspectives are formulated:

- Research of the international regulatory framework and experience of the leading museums on a European and global scale and with regard to digitization;
- Research of the visitors' opinion regarding current and future digitalization processes;

- Research the software and hardware capabilities and solutions that could potentially have the greatest impact for museums, with a view to attract and expand their audiences, incl. studies related to the sustainability of available techniques and resources in the future and ensuring long-term preservation of digital cultural data and access to it (including in emergency situations). Over time, some of the technical means become obsolete or can be damaged by climatic influences and/or crisis situations, therefore providing online access to and/or backup copies of digitized resources could contribute to their long-term future preservation.

- Study of the impact of digitization processes on the preservation and promotion of Bulgaria's cultural heritage and ensuring its long-term access.

- It is expected that in the foreseeable future, digitalization processes will lead to an increase in the quality of communication between the museums themselves and the exchange of information between them. This fact can be a reason for future research perspectives and an object of future research.

III. REFERENCE ON CONTRIBUTION POINTS IN THE DISSERTATION

• It has been established to what extent the legal and normative basis; technical, technological and software equipment; availability of trained personnel in museums; the effectiveness of museum and project management are part of digitalization and how it is a factor in the development of museums in Bulgaria.

• Possibilities are derived based on the analysis from the empirical study regarding the role of digitalization for the development of museums in the reporting of specific activities and results (preserving cultural values in museums, using digitalization to create virtual exhibitions, researching the various aspects of communication between museums and their visitors, through the application of digital innovations, etc.).

• The possibilities of digitization in museums in Bulgaria were analyzed at the levels of professional activities, marketing and advertising; use of technology, software, etc. for the creation of digital collections and virtual expositions, establishing the level of digitization and digital literacy of employees in and visitors of museums in general and of those visiting museums virtually or virtual museums.

IV. PUBLICATIONS RELATED TO THE TOPIC OF THE DISSERTATION

1. **Georgieva**, Vesela. Development of information technologies and their influence on the educational functions of museums. In: *STEMEDU-2020*: *Scientific conference with international participation 2020.* Veliko Tarnovo: Veliko Tarnovo University "St. St. Cyril and Methodius", 2020, pp. 106-112. ISBN 2683-1333.

2. **Georgieva**, Vesela. Peculiarities of cultural tourism in the situation with COVID-19. In: *Tourism and global crises: a collection of reports from an International Scientific Conference*, Veliko Tarnovo: Tourism Department of the Faculty of Economics of the University of Veliko Tarnovo "St. St. Cyril and Methodius", April 21, 2021 [online], 2021, pp. 856-862. ISBN978-619-7281-73-6. Available at: https://books.google.bg/books?id=EMEqEAAAQBAJ&printsec=frontcover&hl=bg&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false.

3. **Georgieva**, Vesela. Attracting museum audiences through digitization in a COVID-19 situation. *Educational Functions of Memory Institutions (Libraries, Museums, Archives): Collection of Papers and Materials from a Round Table Discussion*. Sofia: "St. Kliment Ohridski", 2021, pp. 175-187. ISBN 978-954-07-5411-6.